In the matter of

Revitalization of the AM Radio Service

COMMENTS of Timothy C. Cutforth P.E.

Before the FCC

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In the several years since the FCC announced the apparent need to revitalize AM broadcasting in 2014 VERY FEW of the possible methods of improving service have been seriously considered and only three notable proposals have been adopted.

The first method of improvement allowed was FM translators to carry programs from AM stations in a fill in mode (which has allowed some stations to add another presentation venue to increase advertising cash flow but in fact has also moved more of the remaining listeners of the remaining AM stations over to the FM dial).

The second improvement was a recognition that the AM station licensee that must move the transmitter site most often cannot obtain a site that meets the City of License coverage requirements for a new station. That realization has resulted in relaxation of the night coverage showing required for licensing. Requiring a station to reduce power to below the Class B minimum to continue nighttime service as had been required in the past did not in any way improve service to the public.

The third improvement was a recognition that many areas no longer allowed construction of new towers of the heights required by the FCC rules to make the minimum efficiency specified for each class of station. In response to this issue the FCC promulgated new rules allowing lower minimum efficiencies for AM antennas. The technology to use antenna designs based on shorter towers has been readily available for years but was not previously allowed for use. This has allowed a few stations to continue service to their community rather than abandoning their license and going dark.

However other than helping spread the word that AM radio is pass'e and considered by Washington as a relic of the past – very little effort of significance has been made since 2014 to allow most AM stations to actually provide better service in the AM band for their community of license and their market area whether daytime or nighttime.

NOISE LIMITED SERVICE AREAS

The FCC is specifically empowered and tasked with controlling interference to communications but has done a poor job of controlling the background noise floor interference levels in the last 20+ years since digital and switching devices have become ubiquitous. The FCC always recognized that a higher signal level was required in manufacturing areas to provide community service. For purposes of determining whether a community of 2500 persons or more received service it was required that at least a 2mV/m signal for the community to be considered to receive service.

Now that these computer and switching noise making devices are essentially present everywhere there is utility power, it has become a defacto standard that a 2mV/m signal is the minimum to provide service most anywhere a power line is visible. The old 0.5mV/m primary service level might well have been a desirable standard in the past when noise levels were lower but at this time in most populated areas signal levels below 2mV/m are meaningless except for theoretical analysis.

NEED AND PRECEDENT FOR HIGHER PROTECTED SERVICE LEVEL OF 2mV/m

Allocation Rules specifically based on the 0.5mV/m protected contour are not helpful in preventing actual interference at this time but are preventing service from being improved to overcome the higher broadband noise level that has caused the defacto standard for a useable signal to become 2mV/m nationwide. For years the FCC allowed applications for service to new communities to receive interference up to the 1mV/m level both cochannel and first adjacent channel and this was considered standard service to the public.

FIRST ADJACENT OVERLAP 1 TO 1 AT 2mV/m LEVEL

In 1991 the first adjacent prohibited overlap rule was changed in the name of reducing interference levels from the old 1 to 1 standard that required that the 0.5mV/m first adjacent contours could not cross. The new first adjacent 2 to 1 standard required that the 0.5mV/m and the 0.25mV/m contours cannot cross. Since then only a few new stations have been added so very little interference “reduction” in fact resulted from the new rule. However the few stations that were added since that rule change are significantly disadvantaged in selecting transmitter sites and requiring directional antennas to meet city grade coverage standards while at the same time meeting the 2 to 1 first adjacent overlap standard.

Most of the AM stations in the US already have grandfathered first adjacent prohibited overlap due to allocations having been set by the old standards. Given both the historical precedent of allowing higher overlap standards for stations providing new service to a community as well as the long standing standard of requiring a 2mV/m signal strength to provide service to communities with more than 2500 persons, and the present background noise level requiring defacto signals of 2mV/m to adequately serve any area with utility power, the prohibited overlap standard should be changed to a higher level whether 2mV/m or alternatively 1mV/m and also be returned to the 1 to 1 ratio at the prohibited overlap level.

COCHANNEL CONTOUR PROTECTION OF THE 2mv/m CONTOUR

Protection of the 0.5mV/m contour cochannel does not result in protecting actual coverage in most cases. A higher protected service level is appropriate and would result in very little loss of real service to the public at this time.

SECOND ADJACENT PROTECTION OF THE 25mV/m CONTOUR

The second adjacent protection standard changing from 1 to 1 at the 5mV/m contour to 1 to 1 at the 25mV/m contour is reasonable and desirable at this time. The state of the art is such that I can often listen to stations on the second adjacent channel from the tower site of that second adjacent station without significant interference. While I believe that the interference reduction that resulted from the push for NRSC emissions bandwidth compliance was due mostly to improved IMD characteristics of state of the art transmitters rather than the limitation of audio bandwidth being broadcast, the end result has been dramatically reduced second and third adjacent channel emissions. Third adjacent emissions are essentially no longer a consideration and second adjacent emissions are not significant on most stations.

CLASS A PROTECTION OF WIDE AREA SERVICE CONTOURS

Concerning the unique wide area protection in the Daytime to the 0.1mV/m contour and Nighttime protection to the 0.5mV/m 50% skywave contour for “CLEAR CHANNEL” Class A stations, it has been years since there was enough white area anywhere in the lower 48 to justify protecting the daytime groundwave contour of a Class A station below the 0.5mV/m contour. Likewise the critical hours protection of Class A stations if it is necessary at all is not protecting real service areas beyond the 0.5mV/m groundwave contour level.

The nighttime skywave secondary service area provides little real service at the 0.5mV/m level since the background noise level is closer to 2mV/m nationwide. Protection of intermittent service (50% of the time) at a level below the average noise level is a waste of spectrum.

CLASS A EMERGENCY COMMUNICATIONS POTENTIAL

Concerning the potential for Class A stations to provide special emergency service in a true emergency such as a Hurricane, The distant weak signal will be available for listening over a wide area specifically because the local utility power will be off in those wide areas dramatically reducing the background noise impact rather than due to maintaining antiquated 1930's allocation standards on other classes of stations. During periods when no such cataclysmic emergency situation exists those Class A protected weak signal areas will be adequately served by the ability of the public to use their local station, the internet and other alternate information resources.

NIGHTTIME CLASS A SERVICE VALUE

Protection of Class A night groundwave at the 0.5mV/m contour against 10% skywave will preserve nearly all of the commercially viable service area of Class A facilities. Most of the Class A stations nationwide are identifying themselves by their FM frequency even where it is only a translator. A local case in point is KOA 850 the Denver, Colorado Class A station which promotes itself continually on air as "KOA 94.1 FM" illustrating how the daily listening value of a long successful 50kW Class A station has been displaced by local listening to a 250Watt FM translator. Even Class A stations are showing little concern for the REAL value of having and maintaining a wide area AM coverage in their day to day promotions and sales.

AM BOOSTER TECHNOLOGY TO BETTER SERVE AM LISTENERS

The docket to consider allowing AM Booster stations to be permanently licensed should be folded into the discussion of AM Revitalization as it is one of the KNOWN technologies that can provide improved service to the public.

FM stations have been allowed to use permanently licensed booster stations for over 30 years. In the case of FM Boosters the FM licensee has been allowed to use a booster anywhere within the primary service area at his own discretion.

Recent improvements in technology has allowed true synchronization of both the carrier frequency and the modulation down to the HD digital stream when desired.

I have built two very successful Synchronous Booster systems that provided very good service to the public and had no significant interference overlap zones. I have constructed means to synchronize the carrier of a station with the incoming foreign 50kW interferer that dominated the channel. Such technology is available today right out of the box with GPS referenced frequency synthesizers.

AM licensees have been limited to short term demonstrations of the technology of AM Booster synchronization with no forseeable hope of being allowed to use a licensed booster to serve the public with an improved signal even though booster technology has been demonstrated multiple times to be functional over the last 30 years in multiple situations. It would appear that the FCC does not believe that such improved service to the public is of interest when it comes to AM broadcasting even though the FCC has announced to the world that AM radio is languishing and in need of revitalization.

COMMENT SOURCE

These comments have been prepared by me personally from my wide experience in broadcasting and technical consulting. I am the licensee of two AM radio stations with relatively wide “0.5mV/m protected coverage” but seriously background noise limited in fact. I have been a technical consultant for over 50 years with specialties in design, construction, and maintenance of directional antennas and wide experience from constructing tower sites and studios to constructing synchronous boosters, field strength measurements, proof of performance and Method of Moments filings for AM stations. Many of my clients have asked me about how they can benefit from the Revitalization of the AM Radio Service and I have had to sadly tell them that the spread of proposals is so wide that I cannot tell them how the final rules might benefit their stations. In addition the station owners are taking a wait and see approach knowing that the FCC has already taken years to think about it and may not act in a time frame that would allow the present station ownership to benefit from any positive changes that might be adopted down the road. Even stations that could improve under the present rules are sitting tight waiting to see what magic pill the FCC might come up with.

SUMMARY

The value of AM broadcasting has been unnecessarily damaged specifically by the inertia of the FCC in deferring action for years after declaring to the public the declining influence of AM broadcasting. Quick action is necessary if any of this attempt to revitalize AM broadcasting is to have its intended effect. Further delay may seal the fate of many broadcasters suffering from the malaise and lack of viable opportunities to serve their public with an improved signal in the AM Radio band.

Respectfully,

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